

L 20971-66

ACCESSION NR: AP5018025

3
antenna. At Zimenki, the signals were received by a 15-m diameter 9° angle antenna (a block diagram of the receiver is shown). Photo records of the received signals reveal large slow (1-2 min) and fast (3-10 sec) fluctuations. The distribution of levels was close to the Rayleigh law. Because of the fluctuations, no reception of start-stop telegraph signals was possible. Morse signals at a rate of 60-100 characters/min were received correctly, as well as 8-times-delayed speech signals. Only large-detail facsimile transmission proved possible. The signals via the Moon were of lower quality. "The authors wish to thank G. G. Getmantsey, Ye. A. Benediktov, and N. A. Mityakov for good scientific organization of the experiment." Orig. art. has: 7 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 10Oct64

ENCL: 00

SUB CODE: EC, SV, AA

NO REF SOV: 001

OTHER: 000

Card 2/2 7/19/85

ACC NR: AP6027528

SOURCE CODE: UR/0108/66/021/005/0030/0038

AUTHOR: Afanas'yev, Yu. A. (Active member); Kantor, L. Ya. (Active member)

ORG: Scientific and Technical Society of Radio Engineering and Electro-communication im. A. S. Popov (Nauchno-tehnicheskoye obshchestvo radio-tehniki i elektrosvyazi)

TITLE: Compensation of the control circuit in an FM receiver with a tracking filter

SOURCE: Radiotekhnika, v. 21, no. 5, 1966, 30-38

TOPIC TAGS: fm receiver, radio receiver

ABSTRACT: The stability of a closed tracking-filter system is analyzed by using conventional feedback techniques and the frequency characteristic of an open coupling loop. The feedback in such a loop occurs through a phase modulation of

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UDC: 621.396.621

ACC NR: AP6027528

the carrier of received signal in the tracking filter. It is found that: (1) The overcontrol, $K \gg 1$, as a means for creating an abrupt drop in the equivalent frequency characteristic, in a tracking-filter-type receiver, is practically impossible because of the circuit instability; with $K < 1$, the receiver is always stable; (2) In broadband small-distortion systems, the tracking-filter-type receiver would require a compensation of the control-channel frequency characteristic far beyond its working band; an expedient shape of the frequency-characteristic flank is recommended; (3) The formulas and curves supplied in the article permit calculating the tolerable compression of the tracking-filter band on the basis of specified signal parameters, receiver performance, and control-channel frequency characteristic; (4) So far as the compensation is concerned, the tracking-filter receiver has no advantage over — indeed, it is even inferior to — the frequency-feedback-type receiver. Orig. art. has: 8 figures and 18 formulas.

SUB CODE: 09 / SUBM DATE: 27Feb64 / ORIG REF: 004 / OTH REF: 002

Card 2/2

12

9

Dilatometer for determination of isothermal conversions in alloys. M. M. Kozlov. Zvezdskaya Lab. 4, 124-30 (1935).—A modified form of dilatometer is proposed for the detn. of isothermal transformation of austenite in Cr-Mn steels by automatic registration of changes in expansion of the sample at different temps. The app. illustrated and described. Chas. Blanc

ASD 514 METALLURGICAL LITERATURE CLASSIFICATION

Internal transformations and mechanical properties of
chromium steel. M. M. Kanton and P. M. Zabel
A. A. Kabanov, N. A. Naumov, T. I. (1964), *Met. AN*
Soviet (in *Metals & Alloys*) 8, 241(1967). Sheets 2 mm.
thick and contg. C 0.22, Mn 1.12, Si 1.20 and Cr 1.08% were
investigated dilatometrically and by detn. of mech. prop-
erties. S-curve was detd. with isothermic decarbn.
The results were compared with properties produced by
quenching and drawing. Isothermic decarbn. yielded
greater elongation and toughness with the same strength
M. W. B.

ASO 51.4 METALLURGICAL LITERATURE CLASSIFICATION

KANTOR, M.M.

Metody izucheniia prevrashchenii v stali. Moskva, Mashgiz, 1950. 186 p. illus.

Bibliography: p. 183-(185)

Methods of studying transformations in steel

DLC: TA473.K3

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library
of Congress, 1953.

5

Heat treatment of furnace

Hardening with Isothermal Treatment of Grey Iron in Order to Increase Its Abrasion Resistance. M. M. Kantof, A. P. Kuliav, and E. P. Ivanitskii. (*Vestnik Mashinostroyeniya*, 1981, No. 2; *Problemy Otkrytiya*, 1982, 2, 62-63). [In Polish]. The influence of methods of hardening and heat treatment on the properties of grey iron were investigated. The optimum conditions of isothermal treatment and quenching to obtain the required hardness (270-310 HB) and the best resistance to abrasion were established. — V. G.

"APPROVED FOR RELEASE: 06/13/2000

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APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000520420003-5"

KANTOR, M.M., kandidat tekhnicheskikh nauk; OL'SHEVSKIY, A.A., inzhener.

Increasing the operating qualities of brake shoes. Zhel.dor.transp.
39 no.8:73-75 Ag '57. (MLRA 10:9)

(Railroads--Brakes)

KANTOR, M.M.

SERPIK, N.M., insh.; KANTOR, M.M., dots.

Increasing the wear resistance of soil-cutting blades. Stroi.
i dor. mashinostr. no. 4:33-34 Ap '58. (MIRA 11:4)
(Road machinery)

KANTOR, M.M., kand.tekhn.nauk; OL'SHEVSKIY, A.A., inzh.

Investigating brake shoes of railroad cars. Trudy BITM no.17:
159-168 '57. (MIRA 11:10)
(Railroads--Cars) (Railroads--Brakes)

AUTHORS: Serpik, N. M., Engineer and Kantor, M.M., Candidate of Technical Sciences 129-58-7-11/17

TITLE: Effect of Heat Treatment on the Wear Resistance of Steel in Soil (Vliyaniye termicheskoy obrabotki na iznosostoykost' stali v gruntovoy masse)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 46-50 (USSR)

ABSTRACT: The authors investigated the wear resistance of various steels in soil as a function of the composition, the structure and the type of heat treatment, including isothermal heat treatment which up to now is not being used for components of earth working machinery. Isothermal heat treatment at certain temperatures ensures the formation of more uniform structures of carbide-ferrite mixtures with smaller quantities of ultra-microscopic cracks which should result in an increased wear resistance, compared with components subjected to ordinary hardening and subsequent tempering, for otherwise equal hardness. The compositions of the investigated (seven) steels are entered in Table 1, p.47; the average values of the wear resistance of these steels as a function of the applied

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Effect of Heat Treatment on the Wear Resistance of Steel in Soil 129-58-7-11/17

heat treatment are entered in Table 2, p.48. The tests were carried out on a specially designed test stand in which the specimens were subjected to wear under conditions which closely resemble those in practical operation. On the basis of the results the authors conclude that hardness alone is not an adequate indication of the wear resistance of steel, since the conditions of heat treatment and the structure of the metal also play an important role. For the investigated steels isothermal heat treatment ensures a higher wear resistance than hardening followed by tempering. Maximum wear resistance was obtained for the steel U12 after isothermal heat treatment for producing acicular troostite with excess carbides. The wear resistance of this steel was 1.5 times as high as of ploughshare's steel heat treated to the same hardness by standard procedure.

Card 2/2 There are 4 figures and 2 tables.

ASSOCIATION: Bryanskiy institut transportnogo mashinostroyeniya
(Bryansk Institute of Transport-Machinery Construction)

KANTOR, M.M., kand.tekhn.nauk; SERPIK, N.M., inzh.; VENTSKOVSKIY, Z.L.,
inzh.; MERKULOVICH, V.A., inzh.

Investigating causes of wear of transmission gear boxes of
the D-265 motor grader. Stroitel.dor.mashinostr. 4 no.12:
17-19 D '59. (MIRA 13:3)
(Road machinery--Transmission devices)

KANTOR, M.M., inzh.

Effective grouping of surface buildings and structures of the
Irtysh Mine. Shakht.stroi. 4 no. 5:8-11 My '60. (MIRA 14:4)

1. Kazgiprotsmetmet.
(East Kazakhstan Province—Mine buildings)

SERPIK, N.M.; KANTOR, M.M.

Effect of chromium on the mechanical properties of improved steel. Metalloved. i term. obr. met. no.5:28-29 My '64.
(MIRA 17:6)

1. Byranskiy institut transportnogo mashinostroyeniya.

SERPIK, N.M.; KANTOR, M.M.

Cast iron resistance to abrasive wear. Metalloved. i term. obr. met.
no.7:49-51 J1 '64. (MIRA 17:11)

1. Bryanskiy institut transportnogo mashinostroyeniya.

L 15489-63

ACCESSION NR: AR3003754

EMP(q)/EWT(m)/BDS

AFFTC/ASD

Pad JD

S/0137/63/000/005/I058/I058

SOURCE: RZh. Metallurgiya, Abs. 51316

58

AUTHOR: Kantor, M. M., Serpik, N. M.

TITLE: Investigation of chromium steels for their replacement of scarce chromium-nickel steels

CITED SOURCE: Tr. Bryanskogo in-ta transp. mashinostr., vy*p. 19, 1961, 294-300

TOPIC TAGS: chromium steel, hardness, viscosity tempering

TRANSLATION: The influence of the Cr and C content on a_k and the hardness of the steel after quenching with high tempering (T) was investigated on 16 steels of various compositions. The steels contained 0.21-0.88% C, 0.23-0.51% Mn, 0.14-0.52% Si, 1.10-4.08% Cr, 0.017-0.43% S, and 0.014-0.028% P. T was performed at 500, 600, and 700°. It was established that chromium steels yield to carbon Cr-Ni steels with respect to a_k only at T temperatures of 550-650°. In the case of T at 700°, the former steels surpass the latter both with respect to hardness and with respect to viscosity. Moreover, the higher the C content in

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ACCESSION NR: AR3003754

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chromium steels, the greater the effect of alloying with Cr. For example, when the Cr content is increased from 0 to 3.5%, σ_k increases from 16.6 to 20 kg-wt/cm² for steel with 0.35% C, from 9.2 to 18 kg-wt/cm² for steel with 0.6% C, and from 4.4 to 11.5 kg-wt/cm² for steel with 0.85% C. H_B for these steels changes from 183 to 220, from 166 to 315, and from 230 to 283, respectively. The data obtained indicate that high strength and σ_k can be achieved in steel alloyed with Cr by increasing the T temperature after quenching to 700°. A. Sobolev.

DATE ACQ: 21 Jun 63

SUB CODE: ML

ENCL: 00

Card 2/2

SERPIK, N.M.; KANTOR, M.M.

Investigating the wear of steels by granular abrasives.

Tren. i izn. v mash. no.19:29-51 '64.

(MIRA 18:3)

BEKERMEN, F.A.; KANTOR, M.M.; SERPIK, N.M.; KUGEL', R.V.

Low-alloy steel for tractor track units. Lit. proizv. no.9:1-2 S '64.
(MIRA 18:10)

BEKERMEN, F.A., insh.; KANTOR, M.M., prof.; SERPIK, N.M., kand.tekhn.nauk;
ROMASHOV, B.A., insh.

Studying a new brand of steel for the T-140 tractor track. Trakt.
i sel'khoz mash. no.9:43 S '65. (MIRA 18:10)

1. Beshitskiy staloliteyny zavod (for Bekerman).
2. Bryanskiy institut transportnogo mashinostroyeniya (for Kantor, Serpik).
3. Bryanskiy avtomobil'nyy zavod (for Romashov).

LANDA, V.A.; KANTOR, M.M.; BAYKOV, V.A.

X-ray diffraction control of the quality of surface grinding
and sharpening of a tool made of high-speed steel. Zav. lab.
30 no.6:731-732 '64 (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy in-
stitut i zavod "Prezer".

(N) L 10817-66 EWT(m)/EWA(d)/ENP(t)/ENP(z)/ENP(b) IJP(c) MIN/W
ACC NR. AP8000041 SOURCE CODE: UR/0343/85/000/009/0043/0043

AUTHOR: Bekerman, F.A. (Engineer); Kantor, M.M. (Professor); Serpik, N.M. (Candidate of technical sciences); Romashov, B.A. (Engineer)

ORG: [Bekerman] Bezhtitsk Steel Mill (Bezhtitskiy stalelityenny zavod); [Kantor, Serpik] Bryansk Institute of Transport Machinery Building (Bryanskiy institut transportnogo mashinostroyeniya); [Romashov] Bryansk Automobile Plant (Bryanskiy avtomobil'nyy zavod)

TITLE: Investigation of a new brand of steel for tracks of T-140 tractors

SOURCE: Traktory i sel'khoz mashiny, no. 9, 1965, 43

TOPIC TAGS: steel, tracked vehicle, high alloy steel, vehicle component, CHEMICAL COMPOSITION, CARBON STEEL, SOLID MECHANICAL PROPERTY, T-140 TRACKED VEHICLE, 18KhGST

ABSTRACT: The Bezhtitsk Steel Mill (Bezhtitskiy stalelityenny zavod), Bryansk Institute of Transport Machinery Building (Bryanskiy institut transportnogo mashinostroyeniya), and Bryansk Automobile Plant (Bryanskiy avtozavod) have conducted a study aiming to replace the high-alloy and expensive KDLVT steel for tracks of T-140 tractors with either 20KhG2ST or 18KhGST steel. The chemical compositions of the two steels investigated are given in Table 1 (in %). The 20KhG2ST steel was chosen over the 18KhGST steel because a high carbon content leads to a reduction in the impact strength of the steel, and test melts with a high magnesium content showed cracks when the castings were hammered out of their molds. It is noted that

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UDC: 669.14.018:629.11.01.012.57

2/2

L 24798-66 EWT(m)/T/EWP(t) IJP(c) JD/JG

ACC NR: AP6011661

SOURCE CODE: UR/0020/66/167/003/0635/0636

AUTHOR: Ageyev, N. V. (Corresponding member); Ignatov, D. V.; Kantor, M. M.

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Electron microscopic and microdiffraction analysis of nonmetallic inclusions in molybdenum and its alloys

SOURCE: AN SSSR. Doklady, v. 167, no. 3, 1966, 635-636, and insert facing p. 636

TOPIC TAGS: molybdenum, molybdenum alloy, alloy inclusion, nonmetallic inclusion, electron beam melted alloy

ABSTRACT: The electron microscope is used for studying nonmetallic inclusions in molybdenum and its alloys melted by various methods. The phase composition and distribution of the inclusions were determined in specimens of molybdenum produced by electron-beam melting and in molybdenum alloys containing carbon (0.003-0.021%), titanium (0.02-0.3%) and zirconium (0.01-0.15%), produced by arc melting, and also by fusion melting. The specimens were studied in the cast, deformed and annealed states. The method used for producing the replicas is briefly described. Photomicrographs and diffraction patterns show that the inclusions consist basically

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UDC: 537.533.35:548.4:669.28

L 24798-66

ACC NR: AP6011661

of Mo₂C molybdenum carbide. This is probably due to the melting conditions and heat treatment of the specimens. The electron-beam melting and annealing were done in a vacuum of 10⁻⁴-10⁻⁵ Hg mm. Oil vapor diffusion pumps were used for producing the vacuum. Apparently the main residual gas consists of the oil vapors which decomposes to form carbon. This carbon diffuses into the metal and forms carbides. The residual gas in this case does not oxidize molybdenum and tungsten as is the case for several other metals (e.g. Al, Ti, Zr, Fe etc.). Molybdenum and tungsten oxides are apparently unstable under these conditions while their carbides are highly stable. Orig. art. has: 3 figures, 1 table. [14]

SUB CODE: 11/ SUBM DATE: 28Aug65/ ORIG REF: 004/ OTH REF: 004/ ATD PRESS:

4250

Card 2/2 82

VOYTOVICH, S.A., inzh.; KANTOR, M.Ya., inzh.

Erecting a reinforced-concrete frame during the reconstruction of
the Yaroslav Station in Moscow. Transp. stroi. 14 no.4:27-29 Ap
'64. (MIRA 17:9)

KANTOR, M.Ya.; VOYTOVLICH, S.A.

Concreting domes and shells by wet guniting. Transp. stroi.
14 no.1:29-31 Ja '64. (MIRA 17:8)

1. Glavnyy tekhnolog tresta Moselektrotyagstroy (for Kantor).

KANTOR, M. Z.

Cand Geolog-Mineralog Sci

Dissertation: "Scarns of the Tura and Auerbakh Deposits."

11 March 49

Inst of Geological Sciences, Acad Sci USSR

SO Vecheryaya Moskva
Sum 71

CA KANTOR, M. Z.

P

KANTOR, Z.

Datolite and datolite rock in skarns of Turyna, Ural. M. Z. Kantor, *Zapiski Vsesoyuz. Mineral. Obshchestva* (Mém. Soc. Minéral.) 79, 302-4 (1960).—K. describes datolite from the deposits of Prokova in wollastonite-garnet skarns; the integrator stage analysis gave the following results of mineral compn.: garnet (chiefly andradite, with $n = 1.898$) 38.5; wollastonite 31.5; datolite 15.3; and apophyllite + monoclinic pyroxene (diopside) 17.7%. Datolite forms thin veinlets in the rock, or sometimes crystals up to 1 mm. diam. $n, \beta = 1.652$; $2V$ large, neg., dispersion greater than α ; birefringence about 0.040. Datolite rock (hornfels) was observed in fine-granular limestone and pyroxene-garnet skarn, epidote, and calcite concretions. Locally associated with the datolite are grossularite, epidote, clinopyroxene, tourmaline. The datolite rocks are exclusively restricted to fine-granular limestone, while the lower-stratigraphic horizons never show it. The occurrence of Turyna is in many respects similar to that of contact-metamorphic deposits of the North Caucasus which show sedimentary rocks in contact with trachy-liparites. (hg. forms (shells and foraminifera) are sometimes preserved, filled with datolite. W. Fuchs)

KANTOR, M. Z.

USSR/Cosmochemistry - Geochemistry. Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30381

Author : Kantor, M.Z.

Inst : Department of Natural Sciences, Academy of Sciences
Tadzhik SSR

Title : Garnets of Tur'inskiy Deposits in the Urals

Orig Pub : Izv. Otd. yestestv. nauk AN TadzhSSR, 1956, 15, 9-23

Abst : Description of three varieties of garnet found in the skarn zones of the above-stated deposits. 1. Grossularite -- in monomineral grossularite skarn in the form of plagioclase pseudomorphoses; replaced by epidote, less frequently by calcite, quartz, chlorite. Spectroscopic composition: Y and Ti -- faint lines, Ca, Cr, Be and Zr -- traces. 2. Intermediate difference grossularite - andradite (15-75% andradite) -- in plagioclase, pyroxene and calcite of limestone: replaced by epidote, calcite, chlorite and quartz. Chemical composition

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USSR/Cosmochemistry - Geochemistry. Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30381

(in %): SiO_2 37.92, TiO_2 0.45, Al_2O_3 12.73, Fe_2O_3 8.37, Fe 1.43, MnO 0.53, CaO 2.36, MgO 31.93, H_2O^+ 0.58, H_2O^- 0.28, other extraneous admixtures 3.62, S 0.04, total 100.24; K_2O , Na_2O and P_2O_5 are absent; mineral from endoskarns contains increased amounts of Ti and V. Andradite replaces calcite of limestone, salite and minerals of porphyrite; is replaced by magnetite, salite, quartz, chlorite, hematite, pyrite, chalcopyrite. Limits of chemical composition of three specimens (in %): SiO_2 35.02-36.0, TiO_2 up to 0.08, Al_2O_3 0.06-0.75, Fe_2O_3 29.87-30.44, FeO 0.14-0.31, MnO 0.22-0.32, MgO 0.21-0.50,

CaO 32.15-32.64, $\text{Na}_2\text{O} + \text{K}_2\text{O}$ 0.23 (one determination), H_2O^+ none (one determination), H_2O^- 0.20 (one determination), P_2O_5 up to 0.10, other extraneous admixtures 0.31-0.40; andradites of endoskarns contain moderate lines of V and faint of Ti, in exoskarns these elements are absent.

Card 2/2

KANTOR, M.Z.

Wollastonite rocks in Northern Tajikistan and the possibilities
for their practical utilisation. Dokl. AN Tadsh.SSR no.15:19-24
'56. (MLRA 9:10)

1. Institut geologii AN Tadshikekoy SSR. Predstavleno chlenom-
korrespondentom AN Tadshikekoy SSR.
(Tajikistan--Wollastonite)

KANTON, 19.2.

USSR/Cosmochemistry - Geochemistry. Hydrochemistry

D.

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4155

Author : ~~Kanton~~

Inst : Academy of Sciences Tadzhik SSR *Inat. Geology*

Title : Discovery of Datolite in Central Asia

Orig Pub : Dokl. TadzhSSR, 1956, No 15, 25-26

Abstract : In sections of pyroxene-wollastinitic and wollastonitic skarn, of the 1954 materials, collected at a nameless polymetallic deposit of Northern Tadzhikistan, datolite was discovered for the first time in Central Asia. The skarnic zone extends along the contact of Lower Carboniferous limestones with late Varissic syenite-diorites. Therein the datolite replaces to almost one half the wollastonite and clinopyroxene. Spectral analysis of the rock revealed very strong lines of Si, Ca and Mg, strong lines of Fe and Mn, medium of Al, Pb and Zn, faint lines of Ti and Sb and traces of Ag, Cu and Ni;

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KANTOR, M.Z.

Satin spar in Central Asia. Trudy AN Tadzh. SSR 77:299-307 '57.

(MIRA 11:9)

(Tajikistan--Calcite)

KANTOR, M.Z.

Discovery of seirigite. Dokl. AN Tadsh. SSR 1 no.3:13-21 '58
(MIRA 13:3)

1. Institut geologii AN Tadshikskoy SSR. Predstavleno chlenom-
korrespondentom AN Tadshikskoy SSR R.B. Baratovym.
(Karamasar Mountains--Scheelite)

KANTOR, M.Z.

Research methods in prospecting for boron deposits in Tajikistan.
Trudy AN Tadzh.SSR 104 no.1:149-157 '59. (MIRA 1514)

1. Institut geologii AN Tadzhikskoy SSR.
(Tajikistan--Boron) (Prospecting)

KANTOR, M.Z.

Characteristics of some carbonates of the Dzhangalyk skarn-complex metal deposits (western Karamazar). Izv.vys.ucheb.zav.; geol. i razv. 7 no.3:61-69 Mr '64. (MIRA 18:3)

1. Laboratoriya Chitinskogo filiala Tsentral'nogo nauchno-issledovatel'skogo gornorazvedochnogo instituta tsvetnykh, redkikh i blagorodnykh metallov, Chita.

KANTOR, N.M

PHASE I BOOK EXPLOITATION

SOV/5409

Moscow. Gosudarstvennyy soyuznyy ordena Lenina zavod. Byuro
tehnicheskoy informatsii.

Sbornik materialov po vakuumnoy tekhnike, vyp. 24. Iz opyta raboty
otdela tugoplavivih metallov (Collection of Materials on Vacuum
Engineering, no. 24. From the Work Experience of the Refractory
Metals Section) Moscow, Gosmetzgodat, 1960. 86 p. 600 copies
printed.

Sponsoring Agency: Gosudarstvennyy soyuznyy Ordena Lenina i Ordena
Trudovogo Krasnogo Znameni zavod. Byuro tekhnicheskoy informatsii.

Editorial Staff: R.A. Nlender, Factory Chief Engineer (general
editing), A.G. Aleksandrov, V.D. Wladimirov, and B.I. Korolev;
Ed.: I.L. Iglicyn; Tech. Ed.: G. Ye. Larionov.

PURPOSE: This collection of articles is intended for technical
personnel engaged in vacuum engineering.

COVERAGE: The booklet contains articles which describe the applica-
tion of vacuum techniques in various metallurgical processes, some
methods of regulating the gaseous content of gas-filled tubes, and
other uses made of vacuum techniques. No personalities are men-
tioned. References accompany most of the articles.

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5. Lanis, V.A. Application of the Mass-Spectrometric Method
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6. Kantor, N.M., and V.A. Lanis. Mass-Spectrometric
Investigation of Gases in High-Voltage Gas-Filled Tube
Rectifiers 74
7. Kotlik, L.L. Spectral Analysis of Gases by Means of the
Photoelectric Recording of Spectra 84

AVAILABLE: Library of Congress

JP/dcl/mas
8-3-61

Card 3/3

KANTOR, O.A.; PAVLOVA, A.A.

"Silvery fissure" in AL8 alloy. Lit.proisv. no.6:16-17 S '54.
(Aluminum alloys--Testing) (MIRA 7:10)

KANTOR, P. B.

Dielectric properties of formamide. G. D. Burdun and P. B. Kantor. *Doklady Akad. Nauk S.S.S.R.* 67, 986-8 (1949).—The dielec. const. ϵ of HCONH_2 , at $20 \pm 1^\circ$, in wave lengths $\lambda = 1\text{--}5\text{ m.}$, was detd. by the Drude-Coolidge method, to be 109 ± 1.5 . By the absence of dispersion in this range, this is the static value. Measurements of the dispersion of the real (ϵ') and the imaginary part (ϵ'') gave (selected points), $\lambda = 501.0, 308.0, 101.0, 41.0, 8.4, 6.1, 3.2, 1.6\text{ cm.}$, $\epsilon' = 110.5, 108.0, 110.0, 107.9, 77.7, 58.0, 37.2, 13.5$, $\epsilon'' = 2.4, 4.9, 8.0, 21.0, 44.4, 50.0$ (max.), 43.0, 34.0. From measurements in dil. soln. (mole fraction 0.2 to 0.0065) in dioxane, the polarization $P_\infty = 207.2\text{ cc.}$, and the dipole moment $= 3.0\text{ D.}$, close to Zahn's (C.A. 26, 5803) value for the vapor (3.2). The relaxation time, from the anomalous dispersion, is $0.9 \times 10^{-12}\text{ sec.}$; from the anomalous absorption in dil. soln., $0.90 \times 10^{-12}\text{ sec.}$ N. Thon

Lab. Ultrahigh Frequencies, Kharkov State Inst. Measurements and Measuring Apparatus

KANTOR, P.B.; NESTIN, B.S.

**A water thermostat with automatic temperature control. Izv. tekhn.
no. 5:50-52 S-O '55. (MIRA 9:1)
(Thermostat)**

KANTOR, P.B.; FINKEL'SHTEYN, V.Ye.; SHPIGEL'MAN, Ye.S.

Steam thermostats for controlling surface thermocouples. Izv.tekh.
no.4:76-77 J1-Ag '56. (MLRA 9:11)
(Thermostat) (Thermocouples)

BURDUN, G.D.; KANTOR, P.B. .

Measuring the electric characteristics of some highly absorbent
fluids. Izv. vuzov. Radiofizika. 1956. No. 5:34-40 2-0 '56. (MLA 10:2)
(Fluids--Electric properties)

KANTOR, P.B.

- 24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215
Vsesoyunnyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleeva
- Referaty nauchno-issledovatel'skikh rabot; sbornik No. 2 (Scientific Research Institute; Collection of Articles, No. 2) Moscow, Standartgiz, 1958. 139 p. 1,000 copies printed.
- Additional Sponsoring Agency: USSR. Komitet standartov, ser 1 imenitel'nykh priborov.
- Ed.: S. V. Reshetina; Tech. Ed.: M. A. Kondrat'yeva.
- PURPOSE:** These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and pages for the various industries.
- COVER:** The volume contains 128 reports on standards of measurement and units. The reports were prepared by scientists of institutes of the Komitet standartov, ser 1 imenitel'nykh priborov pri Sovetskom Ministre SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes are: VNIIM - Vsesoyunnyy nauchno-issledovatel'skiy metrologii imeni D.I. Mendeleeva (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleeva) in Leningrad; Sverdlovsk branch of this institute; VNIIX - Vsesoyunnyy nauchno-issledovatel'skiy institut komiteta standartov, ser 1 imenitel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures, and Measuring Instruments), created from VNIIP - Moskovskiy gosudarstvennyy institut ser 1 imenitel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments) in October, 1953; VNIIT - Vsesoyunnyy nauchno-issledovatel'skiy institut tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physico-technical and Radio-engineering Measurements) in Moscow; KHIMIP - Kharkovskiy gosudarstvennyy institut ser 1 imenitel'nykh priborov (Kharkov State Institute of Measures and Measuring Instruments); and KHIMIP - Novosibirskiy gosudarstvennyy institut ser 1 imenitel'nykh priborov (Novosibirsk State Institute of Measures and Measuring Instruments). No personalities are mentioned. There are no references.
- Formula for a Platinum Resistance Thermometer in the Interval -183 - 0°C 72
- Allyeva, Z.Z., B.M. Olamuk, and M.Z. Dolgits [Deceased] (VNIIM). 73
Producing and Studying the Triple Point of Water
- Kondrat'yeva, D.M., P.Z. Alieva, A.M. Gerdov, Q.I. Klimovich, M.P. Shapigal, and A.A. Dolinskaya (VNIIM). International Commission of Resistance Thermometers 74
- Rudnaya, I. (Sverdlovsk Branch of VNIIM). Developing a Method and Studying the Apparatus for Calibrating and Checking Radiative Pyrometers in the 150-800°C Temperature Interval 74
- Kantor, P.B., and Ye.S. Shpigel'man (KHIMIP). Studying Errors in Reproducing the 300-350°C Interval of the International Scale of Temperatures and Improving the Accuracy of the Checking System 75
- Finkel'shteyn, V.Ye., and Ye.S. Shpigel'man (KHIMIP). Designing Card 15/27

24 (8)

SOV/115-59-10-9/29

AUTHORS: Estrin, B.S. and Kantor, P.B.

TITLE: Measuring the Temperatures in the 300-500°C Range

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 10, pp 21-22 (USSR)

ABSTRACT: An ordinary semi-balanced thermometrical bridge for checking the technical thermometer in the 300-500°C range of temperatures was developed by the Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Equipment). The electric circuit diagram of the bridge was designed by taking into consideration the nonlinear dependence of the resistance of a platinum thermometer on the temperature. If the 300-500°C range of temperatures is divided into groups of 10° (300°, 310°, 320° etc) then the formula

$$\frac{R(k+n) - R_k}{R(k+10) - R_k} = f(t)$$

Card 1/3 where k is the number of degrees in a multiple of 10

SOV/115-59-10-9/29

Measuring the Temperatures in the 300-500°C Range

and n the number of degrees from 1 - 10, remains linear in the given range with an error of 10^{-4}°C . In the diagram (Fig 1) R_1 and R_2 are the constant bridge arms and R_t is the arm of the measuring bridge (the platinum thermometer of resistance). The variable bridge arm is composed of coupled resistance coils R_3 and R_4 forming a decade of "ten degrees", and of resistance coil R_5 forming the decade of "single degrees". The values of R_3 , R_4 , and R_5 resistances are so chosen that the R_3 and R_4 values remain constant in each "ten degree" decade and the variation of the R_5 resistance, which by-passes the R_3 resistance, corresponds to the variation of resistance of the thermometer when the temperature increases from k to $k + 10^{\circ}\text{C}$. The diagram of the bridge for measuring temperature in the group 1 - 100°C is shown in Fig 2. If the movable contact of R_5 resistance is in the position n ($0 < n < 10$) the element of the diagram with R_3 and R_5 resistances forming a triangle with R_3 , and R_n and $R_5 - R_n$ sides, can

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Measuring the Temperatures in the 300 - 500°C Range

be transformed into a star with the R_a , R_b and R_c rays, where

$$R_a = \frac{R_n (R_5 - R_n)}{R_5 + R_3} \quad R_b = \frac{(R_5 - R_n) R_3}{R_5 + R_3} \quad R_c = \frac{R_n R_3}{R_5 + R_3}$$

The values of R_4 and R_3 resistance for all temperatures in a multiple of 10 in the 300 - 500°C range can be obtained from the formula derived from the above formulae; the R_5 value is accepted at 30 ohms. There are 2 diagrams and 3 Soviet references.

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06187

SOV/115-59-11-15/36

9 (2)

AUTHORS: Dzyuba, A.S., Kantor, P.B.

TITLE: A Semiconductor Thermocryostat for Checking Reference Thermometers

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 11, pp 39-40

ABSTRACT: Checking reference thermometers in the range of + 20 to - 20°C is connected with considerable difficulties, since there are no suitable and reliable thermostats for this temperature range. A thermocryostat was developed for checking reference thermometers at the Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Instruments). Cold is produced by a semiconductor thermopile produced by the Leningrad Sovnarkhoz. The capacity of the semiconductor thermopile is adequate to keep the temperature at - 20°C when checking four thermometers simultaneously. A temperature regulator is used, which keeps automatically the temperature at the required level. The temperature

Card 1/2

Diagram, 1 Graph,

26592

S/185/60/005/003/007/020
D274/D303

24.5300
AUTHORS:

Kantor, P.B., Kysil', O.M. and Fomychov, Ye.M.

TITLE:

Measurements of enthalpy and heat capacity of silicon at temperatures of 1200 - 1900°K

PERIODICAL:

Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 3, 1960,
358-361

TEXT: The results are given of enthalpy and heat capacity measurements of silicon in the solid and liquid phase, for a temperature range of 1148 - 1915°K. By means of the experimental data obtained, the coefficients are found of the interpolation equations for the enthalpy and heat capacity. The measurements were conducted by means of a calorimeter (consisting of a massive aluminum block) which was placed in a high-temperature vacuum-furnace. The thermostat control of the calorimeter ensured a temperature stability to within $\pm 0.002^\circ\text{C}$. The temperature of the container with the specimen was measured by the optical pyrometer OP-48 to within $\pm 2^\circ\text{C}$.

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Measurements of enthalpy...

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D274/D303

The silicon specimen, of a type especially designed for semiconductor instruments, had no impurities which could be detected by chemical or spectral analysis. The containers were made of quartz. The temperature rise in the calorimeter, after putting in the container, was measured by a platinum-resistance thermometer and a special thermometric bridge. In all, 42 measurements were made. From experimental data, and using the method of least squares, the coefficients of the equations for enthalpy and heat capacity were found:

$$H_T - H_{298,16} = 5,724T + 3,648 \cdot 10^{-4}T^2 - 2078 \text{ cal/g.atom (1)}$$

$$C_p = 5,724 + 7,296 \cdot 10^{-4}T \text{ cal/g.atom (1a)}$$

(between 1200 - 1690°K);

$$H_T - H_{298,16} = 6,018T + 2,983 \cdot 10^{-4}T^2 + 9555 \text{ cal/g.atom (2)}$$

$$C_p = 6,018 + 5,966 \cdot 10^{-4}T \text{ cal/g.atom (2a)}$$

(between 1690 - 1915°K)

The mean square error in the determination of the coefficients was

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Measurements of enthalpy...

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D274/D303

0.4 - 0.7%. The experimental results are plotted on a graph, together with the results obtained by other authors, M.O. Serebrennikov, I.V. Gel'd (Ref. 1: DAS, v. 47, 6, 1021, 1952) and M. Olette, (Ref. 2: Compt. Rend., 8, 244, 1033, 1957). A comparison of results shows that the enthalpy data agree to within 1% with those of Refs. 1 and 2. The heat capacity for silicon in the liquid state was found to be nearly constant = 7.1 cal/g.atom. The melting point was found to be 1690 \pm 40K, and the heat of melting - 11950 \pm 180 cal/g.atom. There are 1 figure, 2 tables and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: K.K. Kelley, U.S. Contributions to the Data on Theoretical Metallurgy, Bull, 476, 1949; M.L. Gayler, Nature, 142, 478, 1938.

ASSOCIATION: Khar'kivs'ky derzhavnyy instytut mir ta vymiryuval'nykh pryladiv (Khar'kov State Institute of Measures and Measuring Instruments)

SUBMITTED: September 16, 1959

Card 3/3

S/126/60/010/006/006/022
E193/E483

11.3600 also 2308

AUTHORS: Kantor, P.B., Krasovitskaya, R.M. and Kisel', A.N.

TITLE: Determination of Enthalpy and Specific Heat of Beryllium in the 600 to 2200°K Temperature Range

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.6, pp.835-837

TEXT: Using twice-distilled beryllium, the present authors measured the enthalpy H of specimens of this metal in the solid state (600 to 1560°K), in the region of the solid \rightarrow liquid transformation, and in the liquid state (1560 to 2166°K). From the experimental data, the coefficients of the equations for H and specific heat C_p of beryllium, were determined by the method of consecutive approximations. The appropriate equations for the solid state are given by

$$H_T - H_{298.16} = 4.322T + 1.09 \times 10^{-3} T^2 - 1490 \text{ cal/g.at} \quad (1)$$

$$C_p = 4.322 + 2.18 \times 10^{-3} T \text{ cal/°C g.at} \quad (1a)$$

(600 - 1560°K)

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S/126/60/010/006/006/022
E193/E483

Determination of Enthalpy and Specific Heat of Beryllium in the
600 to 2200°K Temperature Range
and for the liquid state by

$$H_T - H_{298.16} = 6.079T + 2.569 \times 10^{-4} T^2 + 1327 \text{ cal/g.at} \quad (2)$$

$$C_p = 6.079 + 5.138 \times 10^{-4} T \text{ cal/°C g.at} \quad (2a)$$

(1560 - 2200°K)

The melting point of beryllium was found to be $1557 \pm 5^\circ\text{K}$, the latent heat of melting being $3520 \pm 80 \text{ cal/g at}$. The results of the present investigation were in close agreement with those obtained by L.Losanna (Ref.3). There are 1 figure, 1 table and 7 references: 3 Soviet and 4 non-Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy institut mer i
izmeritel'nykh priborov (Khar'kov State Institute
of Measures and Measuring Instruments)

SUBMITTED: February 17, 1960
Card 2/2

21369

S/126/61/011/004/019/023
E111/E435

18.8100 1413 1413, 1454

AUTHORS: Lazareva, L.S., Kantor, P.B. and Kandyba, V.V.

TITLE: Enthalpy and Specific Heat of Molybdenum in the
Temperature Range 1200 to 2500°KPERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4,
pp.628-629

TEXT: In this work the authors describe their determination with an error of under 1% of the enthalpy of molybdenum at 1154 to 2462°K. Published data (Ref.1-3) on this are scanty and mostly limited to top temperatures of 1400°K. The mixing method was applied using the high-temperature vacuum installation which has already been described by some of the authors (Ref.4,5). Temperature was measured with the type ОП-48 (OP-48) optical pyrometer described by Kandyba (Ref.6). The specimen, 0.2 mm thick molybdenum foil with 0.02% impurities made by the Moskovskiy zavod tverdykh splavov (Moscow Carbide Manufacturing Plant), was contained in a quartz capsule. The whole furnace-calorimeter system was filled with argon at 12 to 14 mm Hg. The temperature rise was measured with an accuracy of 0.001°C with a platinum resistance thermometer. From the experimental data the following

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S/126/61/011/004/019/023
E111/E435

Enthalpy and Specific Heat ...

equations are obtained

$$H_T - H_{298.16} = 4.981 T + 8.795 \cdot 10^{-4} T^2 - 1460 \text{ cal/g} \cdot \text{atom} \quad (1)$$

$$C_p = 4.981 + 17.59 \cdot 10^{-4} T \text{ cal/}^\circ \text{ g} \cdot \text{atom}, (1150 - 2500^\circ \text{K}) \quad (1a)$$

The specific-heat values for 1100 to 1300°K are 1 to 2% and about 10% higher than those, respectively, of Kelley (Ref.2) and of Redfield and others (Ref.1). There are 2 tables and 7 references: 3 Soviet and 4 non-Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Instruments)

SUBMITTED: November 14, 1960

Card 2/2

15.2630

26341
S/076/61/035/007/011/019
B127/B102

AUTHORS: Krasovitskaya, R. M., Kantor, P. B., Kan, L. S.,
Kandyba, V. V., Kutsyna, L. M., and Fomichev, Ye. N.

TITLE: Determination of enthalpy and specific heat of boron oxide
in the range 1000-2200°K

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 7, 1961, 1499-1501

TEXT: The authors studied a sample prepared by the Vsesoyuznyy nauchno-
issledovatel'skiy institut metrologii im. D. I. Mendeleeva (All-Union
Scientific Research Institute of Metrology imeni D. I. Mendeleev). In
order to dry the preparation which contained 0.01-0.02% Mg and water, it
was slowly heated within 7-8 hr to 600-700°C at a pressure of 10^{-2} mm Hg.
It was kept for about 5 hr at this temperature. A formation of bubbles was
initially observed which ceased during heating. The sample was then heated
up to 1000°C, during one hour, and looked then like colorless transparent
glass. Investigation was carried out by means of a massive calorimeter

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S/076/61/035/007/011/019
B127/B102

Determination of enthalpy and specific ...

which consisted of an aluminum block 30 kg with lateral Pt-resistance thermometer. The aluminum block was hermetically enclosed in a vessel which was connected with a vacuum system. Cooling was performed by a double water jacket kept at $25 \pm 0.05^\circ\text{C}$. A vacuum furnace was used for heating, consisting of an electric heater (a graphite tube of 600 mm length and 45 mm diameter), which was surrounded by coaxially arranged cylindric screens of graphite, tantalum, molybdenum and steel. The temperature was measured by means of a Pt-Rh-Pt thermocouple and an optical 3011-51 (EOP-51) pyrometer. Visual readings were made through a window in the furnace. The error of temperature measurement did not exceed 0.1% up to 1700°K and 0.3% up to 2300°K . The apparatus was evacuated to 10^{-4} mm Hg and then filled with argon (15-20 mm Hg) during the experiment. The ampuls were made from platinum which does not react with B_2O_3 up to 1650°K . Molybdenum was also suitable.

At temperatures above 1600°K the argon pressure was increased to 600-700 mm Hg. The results of measurement are summarized in the Table. The following interpolation formula was used: $H_T - H_{298.16} = 30.54T - 11920 \text{ cal/mole}$ and $C_p = 30.54 \text{ cal/mole}\cdot\text{degree}$ (1000-2150°K). There are 1 table and

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Determination of enthalpy and specific...

S/076/61/035/007/011/019
B127/B102

9 references: 6 Soviet-bloc and 3 non-Soviet-bloc. The most recent references to English-language publications read as follows: Ref. 4: K. Keller, Contributions to the data of theor. Metallurgy, X, 1949. Ref. 2: I. C. Southard: J. Amer. Chem. Soc., 63, 3147, 1941.

ASSOCIATION: Institut mer i izmeritel'nykh priborov (Institute of Measures and Measuring Instruments)

SUBMITTED: October 17, 1959

Card 3/4

FOMICHEV, Ye.N.; KANDYBA, V.V.; KANTOR, P.B.

Calorimetric unit for determining the enthalpy and heat capacity
of substances. Izv.tekh. no.5:15-18 My '62. (MIRA 15:6)
(Calorimeters)

PT. KANTOR, P.I.

✓ An Experiment in the Use of Statistical Methods of Analysis
and Control in Foundry Production. A. I. Antonov, P. I.
Kantor, and M. E. Mirkin (Leningrad Production, 1968, (8),
23-24). (In Russian). An example of the analysis of the
causes of scrap in foundry control by the appn. of statistical
methods is fully described.—V. K.

(2)
Df

KANICK, P. L.

SHUB, I. Ye., kandidat tekhnicheskikh nauk; SHORYGINA, N. V., kandidat
khimicheskikh nauk; KANTOR, P. I., inzhener.

Gluing together the two halves of the shell mold. Lit. proisv.
no. 11:2-5 N '56. (MLA 10:1)
(Shell molding (Founding)) (Gluing)

ARBUZOV, Boris Afanas'yevich; KANTOR, P.I., red.

[Efficient methods of preparing coated mixtures]
Ratsional'nye sposoby prigotovleniia plakirovan-
nykh smesei. Leningrad, 1965. 23 p. (MIRA 18:10)

KANTOR, R.

Without initiative, without scope. NTO 5 no.1:15-16 Ja '63.
(MIRA 16:5)
(Nikolaev--Steel industry)

BEREZOVSKIY, V.I.; KANTOR, R.I.; MATUSEVICH, M.A.

Characteristics of building products made of phosphoanhydrite
cement. Stroil. mat. 10 no.2:30-32 F '64.

(MIRA 17:6)

KANTOR, R. M.

189110

USSR/Electricity - Transmission
Systems, High-Voltage

MAY, 51

"Some Problems From the Theory of Dynamic Over-
voltages in Electric Power Systems," R. M. Kantor,
Cand Tech Sci, Moscow

"Elektrichestvo" No 5, pp 12-19

Theoretical and exptl study of the possible causes
and forms of dynamic overvoltages which might arise
on the very long ac transmission lines carrying
power from the Kuybyshev and Stalingrad hydroelec
power stations. Submitted 25 Dec 50.

189118

absence of an external m.f. member due to perfect
uniformity of the system parameters. This process
leads to a constant equilibrium state.

Electrical Engineering

the maximum processes in the circuit of the machine are
achieved when the system is in a state of equilibrium.

4.4

KANTOR, R.M.

KOLYASIN, Ye.A., kandidat tekhnicheskikh nauk; KANTOR, R.M., kandidat tekhnicheskikh nauk

Using an electric transmission in agricultural machines.
Sel'khoz mashina no.6:31-32 Je '55. (MLRA 8:8)
(Agricultural machinery)

Kantor R.M.

PHASE I BOOK EXPLOITATION

730

Dolginov, Aleksandr Iosifovich

Rezonans v elektricheskikh tsepyakh i sistemakh (Resonance in Electric Circuits and Systems) Moscow, Gosenergoizdat, 1957. 327 p. 7,000 copies printed.

Ed.: Kantor, R.M.; Tech. Ed.: Voronin, K.P.

PURPOSE: The monograph is intended for research institute personnel and design engineers.

COVERAGE: The theory of resonance in electric circuits and systems is discussed. Theoretical and experimental results obtained from the study of operating conditions at resonance are generalized, and an analysis of various forms of resonance observed in electric circuits and systems is presented. Problems connected with parametric resonance of various forms are also covered.

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Resonance in Electric Circuits and Systems

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The bulk of the theoretical and experimental investigations, on which this book is based, was carried out at the laboratory of physical modeling of the Moscow Power Institute. Some of these investigations were presented by the author at conferences and seminars of the Moscow Power Institute, the All-Union Correspondence Power Institute, the Leningrad Polytechnic Institute, and the Scientific Research Institute of Direct Current. A part of the research in ferroresonance in electric circuits was done by the Chair of Electrical Apparatus of the Moscow Power Institute. The author thanks the director in charge of the electrodynamic model of the Moscow Power Institute, Professor V.A. Venikov, Doctor of Technical Sciences; Professor D.A. Federov, and Professor M.A. Babikov, Doctor of Technical Sciences, Head of Electrical Apparatus Chair of the Moscow Power Institute, for their help in a number of investigations whose results appear in this book. Valuable advice was given to the author by Professor Ya. Z. Tsypkin, Doctor of Technical Sciences, who reviewed the book and R.M. Kantor, Candidate of Technical

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Resonance in Electric Circuits and Systems 730

Sciences, the editor. There are 74 references, 55 of which are Soviet (including 2 translations), 14 English, 4 German, and 1 French.

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Ch. I. Resonance in Single-phase Electric Circuits	16
1. Resonance in electric circuits with one degree of freedom	16

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29625

S/142/61/004/003/006/016

E192/E382

9.2572 (1144)

AUTHOR: Kantor, R.M.

TITLE: Theory of oscillations in parametric resonators
(parametrons) with ferrite cores

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiotekhnika, v. 4, no. 3, 1961, pp. 285 - 299

TEXT: The fundamental theory of parametric excitation of electrical oscillations was published a few decades ago by the Soviet physicists, A.A. Andronov, L.I. Mandel'shtam, N.D. Papaleksi and their collaborators. The parametric resonance was investigated experimentally on various systems, including the parametric resonator shown in Fig. 1. A parametric resonator was developed at the High-frequency Physics Laboratory in Leningrad and was first mentioned in a lecture by N.D. Papaleksi in 1931 (Ref. 2 - Izd.vo AN SSSR, 1948, 10-14; November, 1931, Sb.1), In the system of Fig. 1, the transformer cores 1 and 2 are made of sheet steel and the secondary windings are connected against each other in order to eliminate the frequency $2f$ from the resonant

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S/142/61/004/003/006/016
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Theory of oscillations ...

circuit. The parametric resonance effect was described by E. Goto (Ref. 20 - PIRE, 1959, no. 8, 1304) who published his work about 20 years later without mentioning the Soviet authors. The phenomena in a parametric resonator with nonlinear inductance can be described by a differential equation where the magnetic characteristic of the parametron is expressed by a third-degree polynomial. It is shown, however, that such a description is inadequate and that a fifth-degree polynomial is more satisfactory. A parametron based on the circuit of Fig. 1 was investigated experimentally. The load of the system was a resistance R connected across the capacitance C . The cores of the inductive coils were in the form of toroids having dimensions $7 \times 4 \times 2$ or $5 \times 3 \times 1.8$ mm and were made of ferrites of different types. The measurements were carried out at frequencies between 100 and 1 000 kc/s. At a given magnetizing current i_0 and parameters R and C , the behaviour of a parametron is described by its threshold and resonance characteristics. The threshold characteristics of the system are given in Figs. 8, where the minimum excitation

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Theory of oscillations

current i_{2f} necessary for obtaining the parametric resonance is plotted as a function of the excitation frequency $2f$. The resonance curves of the system as a function of the excitation frequency were also measured; these represent the voltage u_c developed across the condenser for various values of i_0 and i_{2f} . An attempt is made to analyse the behaviour of the system by using the basic Mandel'shtam--Papaleksi equation. The behaviour of a resonant circuit can be described by:

$$\frac{d^2\psi}{dt^2} + \frac{1}{RC} \frac{d\psi}{dt} + \frac{i}{C} = 0 \quad (8) \quad X$$

where the flux linkage ψ is a periodic function of time and a nonlinear function of current i , which is described by

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Theory of oscillations

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$$\psi = L_0(1 + 2h \sin 2\sqrt{t})(1 + \lambda_1 i^2 + \lambda_2 i^4)i,$$

$$\lambda_1 < 0, \lambda_2 > 0.$$

X

The final expression is in the form of:

$$\frac{d^2\psi}{dt^2} + \frac{1}{RC} \frac{d\psi}{dt} + \omega_0^2(1 + \kappa_1\psi^2 + \kappa_2\psi^4 - 2h \sin 2\sqrt{t})\psi = 0 \quad (9)$$

$$\text{Sign } \kappa = - \text{Sign } \lambda.$$

By introducing the notation of Eq. (10) and averaging over $\tau = \sqrt{t}$, the simplified equations of the system are:

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Theory of oscillations

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$$2 \frac{dx}{d\tau} = (\gamma - \delta)x + \alpha y; \quad (11) .$$

$$2 \frac{dy}{d\tau} = -\alpha x - (\gamma + \delta)y$$

From Eqs. (11) it follows that the steady-state amplitudes are defined by:

$$\gamma^2 = \alpha^2 + \delta^2 \quad (12)$$

where γ is the modulation coefficient. The above equations are employed to investigate the stability of the system and its threshold and the resonance characteristics. From the analysis and the experiments, it is concluded that the theory developed by the Soviet scientists about thirty years ago could not adequately explain the resonance characteristics in parametric amplifiers. This was primarily due to the fact that a

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S/142/61/004,003/006/016
E192/E382

Theory of oscillations

third-degree polynomial was used to approximate the magnetization curve. By employing a fifth-degree polynomial approximating the nonlinearity of the resonator, all the experimentally observed resonance and threshold characteristics of the parametrons with ferrite cores can be satisfactorily explained. There are 13 figures and 21 references: 20 Soviet-bloc and 1 non-Soviet-bloc which is quoted in the text.

ASSOCIATION: Kafedra teoreticheskikh osnov elektrotekhniki
Moskovskogo energeticheskogo instituta
(Department of Theoretical Principles of
Electrical Engineering of Moscow Power-engineering
Institute) X

SUBMITTED: December 8, 1960

Card 6/76

KANTOR, R.M., kand.tekhn.nauk

Effect of excitation regulation on the self-excitation
of synchronous machines operating with a capacitive load.

Elektrichestvo no.9:14-20 S '62.

(MIRA 15:9)

(Electric generators)

(Electric power distribution)

9.7100

S/142/62/005/003/006/009
E140/E435

AUTHOR: Kantor, R.M.

TITLE: Generalized linearization methods in the theory of
nonlinear oscillations in parametric resonators

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiotekhnika, .
v.5, no.3, 1962, 356-367

TEXT: The present article follows the author's previous study
of the Goto parametron (Izv. VUZ Radiotekhnika, v.4, no.3, 1961,
285). There, a Mathieu type equation was solved. In the
present work a "complete" system of differential equations is
solved by methods of "generalized linearization". The author
terms his first effort "simplified", the present work "rigorous".
The ferrite characteristic is approximated by an odd polynomial of
fifth degree. The method gives the generalized detuning and the
generalized depth of modulation as functions of the sum and
difference magnetic fluxes in the two cores of the oscillator.
These two functions explain fully the resonant curves of
parametric oscillators as well as of arbitrary ferroresonant
systems. Conditions are found for discontinuities in subharmonic
Card 1/2

VB

S/142/62/005/003/006/009
E140/E435

Generalized linearization ...

generation. It is found that the condition for formation of auto-modulation is closeness of the oscillatory system to conservative. There is 1 figure. VB

ASSOCIATION: Kafedra teoreticheskikh osnov elektrotekhniki,
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Institute)

SUBMITTED: October 20, 1961

Card 2/2

KANTOR, R.M., kand.tekhn.nauk

Use of Gol'dfarb's method for calculating transients in nonlinear
circuits. Elektrotehnika 35 no.2:43-45 F '64. (MIRA 17:3)

Kantor, S.

Dwelling-construction problems for settlements which do not have public utilities.
p. 50.

EPITESUGYI SZEMLE. Budapest, Hungary. No. 2, 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 1, Jan. 1960.

Uncl.

KANTOR, Sandor

Drainage and treatment of the sewage water of dwelling projects.
Epites szemle 5 no.3:78-81 '61.

EGYEDI, Laszlo; LITVAI, Tamas; KANTOR, Sandor

Situation and tasks of civil engineering and public utilities research. Erites szemle 6 no.2:43-47 '62.

1. Epitestufomanyi Intezet tagozatvezetoje (for Egyedi and Litvai). 2. Epitestudomanyi Intezet tudomanyos fomuunkatarsa (for Kantor).

KANTOR, Sandor, dr., egyetemi adjunktus

The Farkas Bolyai theorem on the "finite area equality." Term
tud kozl 8 no.3:142-143 Mr '64.

KANTOR, Sandor

Remarks on the axiomatic introduction of the notice of convergence,
Mat lapok 14, no.1/2:137-139 '63.

KHANIK, S.H.

XANTOR, S.A.

Principles of the neutron log theory. Prikl.geofiz. no.13:
3-22 '55. (MLRA 8:10)
(Oil well logging) (Radioactivity)

KHOLIN, A.I.; KANTOR, S.A.; LARIONOV, V.V.

Some features of processing and interpreting data on radiation well logging related to statistical characteristics of previously investigated processes. Trudy MWI no.15:227-236 '55. (MLRA 9:8)
(Oil well logging, Radiation)

15-57-1-994

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1,
p 157 (USSR)

AUTHORS: Kholin, A. I., Kantor, S. A., Larionov, V. V.,
Barsukov, O. A.

TITLE: The Influence of the Size of Probe on the Results of
Measurements by the Neutron Gamma Method (K voprosu
o vliyanii razmera indikatora na rezul'taty izmereniy
neytronnym gamma-metodom)

PERIODICAL: Tr. Mosk. neft. in-ta, 1955, Nr 15, pp 236-246.

ABSTRACT: In association with the ultimate size of a probe for
gamma radiation during radiometric investigation of
drill holes, the intensity of secondary gamma radiation
 I_{rec} is distinguished from the theoretical $I_{o rec}$,
calculated on the assumption that the indicator is
accurate, in the following relation:

$$I_{rec} = I_{o rec} \frac{2}{\mu a} \text{sh}(\mu a/2),$$

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15-57-1-994

The Influence of the Size of Probe on the Results (Cont.)

where μ is a coefficient depending on the hydrogen content of the medium, a is the length of the probe, and sh is the hyperbolic sine. To determine quantitatively the porosity by intensity of secondary gamma radiation, it is expedient to use a probe of minimum length or to introduce a correction to the value of the recorded intensity for the length of the probe. Curves are supplied to show the relationship between the correction factor and the value of μa produced. The ultimate length of the probe leads to a distorted actual length of the sonde ($l_{act.}$) by the neutron gamma method, calculated from the computation of l between the source and the middle of the indicator. To obtain an approximate calculation of the actual length of the sonde, the following formula is recommended: $l_{act.} = pq/q - p \log q/p$, where p and q are the distances from the source of neutrons to the first and second ends of the indicator (counter).

N. A. P.

Card 2/2

KANTOR, S.A.

Radiation logs. Znan.sila 30 no.8:18-21 Ag'55. (MLRA 8:11)
(C. Well logging, Radiation)

KANTOR, S. A., SUSLOV, V. G., and SHKAL'NIKOV, A. S.

"Application of Gamma Spectrometry to Bore-Hole Gaging Operations by the Neutron-Induced Radioactivity Method," Utilization of Radioactive Isotopes & Emanations in the Petroleum Industry (Symposium), Min. Petroleum Industry USSR 1957.

Results of the Joint Session of the Technical Council of Min of the Petroleum Industry USSR and Soviet Sci and Technical Association, Moscow 14-19 Mar 1956.

KANTOR, S. A.
KANTOR, S. A. and SHKOL'NIKOV, A. S.

"Portable and Economical Instruments for the Radioactive Survey Methods,"
Utilization of Radioactive Isotopes & Emanations in the Petroleum Industry
(Symposium), Min. Petroleum Industry USSR, 1957.

Results of the Joint Session of the Technical Council of Min of the Petroleum
Industry USSR and Soviet Sci and Technical Association, Moscow 14-19 Mar 1956.

KANTOR, S. A.

"Depth of Penetration in Rocks in Neutron-neutron Logging Tests"

Prikladnaya geofizika; sobornik statey, vyp. 21 (Applied Geophysics; Collection of Articles, Nr 21) Moscow, Gostoptekhnizdat, 1958. 221 p.

KANTOR, S.A.

Effective depth of investigating rocks by neutron-neutron
logging. Prikl. geofiz. no.21:111-133 '58. (MIRA 12:1)
(Oil well logging, Radiation)

KANTOR, S. A., Candidate Tech Sci (diss) -- "Theoretical investigation of the problem of studying a geological cross-section by neutron methods". Moscow, 1959. 11 pp (Acad Sci USSR, Inst of Geology and Prospecting for Mineral Fuels), 160 copies (KL, No 24, 1959, 137)

KALLOS, S.A.

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NOTIFICATION NOO I SEVER
6682/ASO

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Всесоюзный научно-исследовательский институт геофизических методов разведки

Prilozhniye geofizika; sbornik statey, vyp. 23 (Applied Geophysics; Collection of Articles, No. 23) Moscow, Gostoptekhnizdat, 1959.
242 p. 3,500 copies printed.

Ed.: M. L. Polshkov; Exec. Ed.: N. M. Kuz'mina; Tech. Ed.: A. S. Polosina.

PURPOSE: This book is intended for scientific, engineering, and technical personnel of industrial geophysical exploration services.

NOTES: This is a collection of 14 articles by various authors on aspects of geophysical exploration. The material treated in the articles may be divided into four categories: the physical principles of geophysics; the geological features of the USSR and its regions; industrial geophysical exploration, methods and techniques; and the theory of electrical exploration, and the economics involved in geophysical operations. Specifically, the authors discuss the geological structures of the central parts of the Russian Platform, the southern part of the Siberian Platform, the eastern part of the Siberian Platform, the West Siberian Plains, the Alai Mountains, the Altai Mountains, the West Siberian basins; electrical frequency sounding, neutron logging, gamma spectrometry techniques, and the standard equipment and installations of the geophysical services of the petroleum industry in the USSR. References accompany each article.

Imlayevskiy, A.A. Density Characteristics of the Geological Profile of the Eastern Part of the Siberian Platform 112

Ilaktionov, A.B. Density of Sedimentary Beds of Ustyurt 127

urkov, A. P. Nature of the Anomalous Gravitational Field of the Musinsk Basins

skin, A.Ya. Methods of Solving Problems in Mechanics of Solids, 196

Author, J. A. The Effect of the Diameter of a Borehole on the
181

Instrument Readings in Neutron-Neutron Logging

Geostroy G.A., V.M. Prokof'yev, A.I. Enolin, and A.P. Taitovich, 1981
 Use of Differential Gamma-Spectrometry in Petroleum Geology

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lyakov, Ye. A. An Equivalent Electrical Schematic for an Electrode

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Solve Problems in the Design of a Borehole Neutron Generator

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12-31-58

12-21-28

KANTOR, S.A.

Depth reached in exploring rocks by pulse neutron logging with a
thermal neutron source. Prikl. geofiz. no.29:174-186 '61.
(MIRA 14:6)

(Radioactive prospecting)